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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/693,358	10/19/2000	Coke S. Reed	M-9051 US	8267

32794 7590 10/19/2004

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EXAMINER

JUNTIMA, NITTAYA

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/693,358

Applicant(s)

REED ET AL.

Examiner

Nittaya Juntima

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-18 and 20-56 is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This action is in response to the amendment After Final filed on August 16, 2004.

1. The prosecution is now reopened. The finality of the Office action mailed on June 23, 2004 is hereby withdrawn in view of the new ground of rejection set forth below. Applicant's first submission after final filed on August 16, 2004 has been entered.
2. The objection to claims 1, 30, 37, and 40-43 is withdrawn in view of applicant's amendment.
3. Claims 15-18, 20-56 are allowed, and claim 19 is cancelled.
4. Claims 1-13 are presently rejected under 35 U.S.C. 103(a).
5. Claim 14 is currently objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Claim Objections***

6. Claims 12-14 are objected to because of the following informalities:
  - in claims 12-14, "QOS" should be spelled out as "quality-of-service" to avoid any misinterpretation.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

Art Unit: 2663

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over arts of record, Coke S. Reed (WO 97/04399) in view of Monacos (USPN 5,617,413).

Per **claim 1**, as shown in Fig. 3B, Reed teaches an interconnect structure comprising *a plurality of interconnected nodes including distinct nodes A (A), B (D), C (F), and D (E), data interconnect line AB<sub>1</sub>* (line interconnecting node A and node D), *data interconnect line CD<sub>1</sub>* (line interconnecting node F and node E), *a data interconnect line AD* (line interconnecting node A and node E), *means for detecting a condition at the node C* (it is inherent that node A is able to detect a condition that node F has a higher priority message for node E following a receipt of control signal sent from node F, page 10, lines 16-22), *means for sending a control signal CS from the node C (F) to the node A (A)* (page 6, lines 24-27 – page 7, lines 1-20, and page 17, lines 8-20), *the control signal* (a control signal) *being determined at least in part by the condition at the node C (F)* (it is inherent that the control signal is determined as to whether the node F has a message to send to the node E on the same level, page 7, lines 15-20, page 10, lines 16-22, and page 47, lines 3-6), and *means for sending a message M* (a message M) *arriving at the node A (A) to the node B(D) or the node D (E) on a data interconnect line selected from among the data interconnect lines AB<sub>1</sub> and AD depending at least partly on the control signal CS* (if a message M at the node A is not blocked, i.e. no control signal is sent from node F indicating that node F has a message with higher priority than message M for node E,

Art Unit: 2663

then the message M at node A will be routed to the node E via the line connecting nodes A and E in Fig. 3B; however, if a control signal is received, the message M will be deflected to node D through the line connecting between nodes A and D in Fig. 3B, page 9, lines 21-26, page 10, lines 16-22, and page 30, lines 14-21); *wherein the condition at the node C* (node F has higher priority message for node E), *depending in part on quality of services* (priorities) *of messages passing from node C(F) to node D(E)*, *manages sending of messages* (messages at node A) *from the node A to the node D* (in a case where node F has messages for node E with higher priorities than those of node A, those messages at node A for node E would be temporarily blocked, page 10, lines 16-26 and page 47, lines 3-6).

However, Reed fails to teach data interconnection lines AB<sub>2</sub> and CD<sub>2</sub>. As shown in Fig. 6, Monacos teaches the second data interconnection line AB<sub>2</sub> connecting between output port 5 of node A (the claimed node A) and input port 5 of node C (the claimed node B), and the second data interconnection line CD<sub>2</sub> connecting between output port 5 of node B (the claimed node C) and input port 5 of node D (the claimed node D).

Given the teaching of Monacos, it would have been obvious to one skilled in the art to incorporate the data interconnection lines AB<sub>2</sub> and CD<sub>2</sub> into the structure of Reed to accommodate an increase in bandwidth requirement and/or provide redundancy to the existing links.

Per **claim 2**, Reed teaches that *the control signal CS is carried from the node C (F) to the node A (A) on a control interconnect line* (dotted line connecting F and A) *from the node C (F) to the node A (A)* (Fig. 3B and page 17, lines 8-11 and 15).

Per **claim 3**, as shown in Fig. 3B, Reed teaches that *every output port reachable from the node A is reachable from the node C* (as both nodes A and F are trying transmitting the data to node E, therefore, it is inherent that node E is in a suitable path for accessing a destination device and the output port of the destination device is reachable from both nodes A and F, page 29, lines 25-28, page 30, lines 14-16, page 33, lines 14-17), and *an output port that is reachable from node A and is not reachable from the node B* (an output port of a destination device corresponding to a message sent to node A is not reachable from node D, page 22, lines 15-18)

Per **claim 4**, Reed teaches that *the line AD passes directly from the node A (A) to the node D (E)* (Fig. 3B).

Per **claim 5**, Reed fails to teach that the line AD passes through a node between the node A and the node D on the line AD. Monacos teaches *the line AD passes through a node* (node E in Fig. 1) *between the node A (A) and the node D (F) on the line AD* (in Fig. 1, the line AF is connecting node A to node E, node E to node B, and node B to node F).

Per **claim 9**, Reed teaches that *when the condition at the node C (F) is that the node C (F) sends a message on each line from the node C (F) to the node D (E), then the node A (A) can send no messages to the node D (E)* (when the node F has a message to send to the node E, node F has a higher priority than node A, therefore, node A cannot send messages to node E, Fig. 3B, page 10, lines 16-22, page 30, lines 14-16 and page 47, lines 3-6).

Per **claim 11**, Reed teaches *a message M is sent from the node A (A) through the node D (E) to its target destination* (page 29, lines 25- page 31, lines 25-28-page 32, lines 1-2), but fails to teach that the message M is selected from a message set R containing each message at the node A that can reach the target of the message M through the node D.

Art Unit: 2663

However, as shown in Fig. 3B that nodes A, D, and E each have more than one input ports for receiving messages for routing, therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Reed to include a message set R which contains each message at node A that can reach the target of the message M through node D (E). And because the interconnect structure linking a group of ATM machines (page 4, lines 13-18), the motivation to do so would have been to route a message M, e.g. an ATM cell, that has a highest priority in the message set R received at node A for QoS purposes.

Per **claim 12**, Reed does not teach that no message in the message set R has a higher level of QoS than the message M. However, Reed teaches that the interconnect structure can be used in ATM machines (page 4, lines 13-18) which ATM cells with different QoS must be used to transport data. Therefore, it would have been obvious to one skilled in the art to include no message in the message set R has a higher level of QoS than the message M in order to maintain the QoS of the message M in a case where message M has the highest QoS level.

Per **claim 13**, Reed teaches that the message M is not sent to the node D (E in Fig. 3B) based on information (information resulted from control signal sent by node F) from the node A (page 7, lines 1-20), but Reed fails to teach a message in the message set R with the same level of QoS as the message M is not sent to the node D based on information from node A. However, it would have been obvious to one skilled in the art to modify the teaching of Reed to include that a message in the message set R with the same level of QoS as the message M is not sent to the node D based on information from node A. The suggestion to do so would have been because node C (F) which is on the same level as node D (E) has higher priority message to send

Art Unit: 2663

to node D (E) and the impending transmission conflicts are avoided by using control information sent by node C (F) (page 7, lines 8 and 15-20).

### *Conclusion*


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima  
October 14, 2004

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